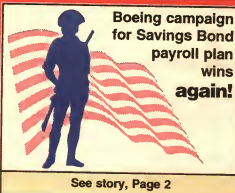


Boeing campaign for Savings Bond payroll plan wins again!



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BOEING NEWS

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Boeing designs may aid living at lunar outpost

by Jim Keller

Boeing Defense & Space Group
Missiles & Space Division

Setting up house on the moon. It's only a neighborhood away for Boeing Defense & Space Group engineers who are refining initial design concepts and developing computer models for life at a lunar outpost.

Missiles & Space Division engineers in the Civil Space Product Development (formerly Advanced Civil Space Systems) organization at Huntsville, Ala., have designed several space-age hardware systems that are meant for long-term residency. They're not only for man on the moon, but also for the Boeing role in space exploration be-

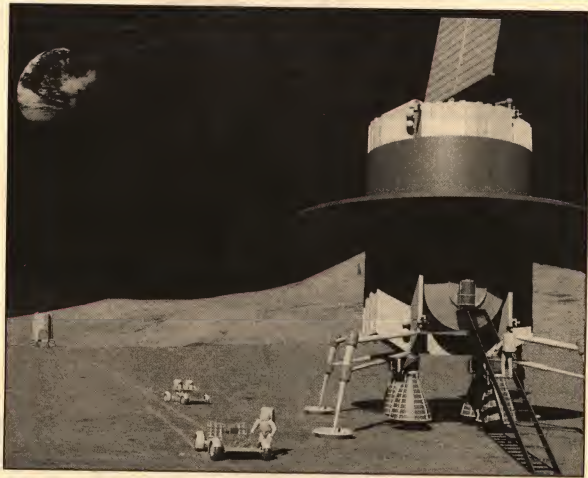
yond the space station.

The engineers are refining initial design concepts and developing computer models and analytical tools that allow performance analyses and detailed cost analysis to be performed on moon-based hardware systems.

One of the latest concepts is an updated lunar-outpost campsite that could economically support lunar explorers at the turn of the century. Once the campsite is ready, the crew could explore the lunar surface, perform scientific experiments and begin building permanent lunar facilities.

The newest computer-aided-design drawing of a lunar outpost shows several of the component system concepts and demonstrates

See OUTPOST, Page 12



This latest computer-aided-design drawing of a lunar outpost shows some innovative concepts and designs Boeing engineers are working on. Included is a lightweight airlock (cylindrical structure at the top of the ladder) allowing easy access for exploration on the lunar surface. The crew of four could

spend up to 42 days at the outpost, allowing them to explore, perform experiments and begin building a permanent lunar base. They are transported to and from the moon in a separate crew vehicle shown in the lower left background.

—computer drawing by Buddy Tanner

Team effort super-smoothes 767 nose skins

by Susan Calbeck
Boeing News, Wichita

Wichita-Everett team effort to smooth out the skin on the 767 cab assembly has had a ripple effect not only in reducing skin waviness on the airplane, but also in producing overall manufacturing improvements including reduction of weight and labor hours.

On 767s, as on many aircraft, altitude and airspeed readings are picked up by gun-shaped probes near the cockpit area on both sides of the airplane. The devices, called Pitot-static probes, measure air pressure.

According to aerodynamics engineer Tony Wiederkehr, in Everett, when Boeing test pilots found that the captain's and first officer's altimeters sometimes displayed different altitude readings (called "alti-

titude-split"), a problem of skin waviness in the Pitot-static region was diagnosed.

"A wavy skin in the pitot-static region will cause local pressure variations, which are different from those of a smooth surface," Wiederkehr said. "The probes were obtaining static pressures based on a wavy skin contour."

A team was formed to fix the problem. Members included engineers, mechanics, planners and tooling

people from Everett, where the 767 is assembled, and their counterparts in Wichita.

Vic McMullen Jr., manufacturing supervisor in Wichita for the 767 Section 41 cab, said teamwork was evident from the start.

"We got involved when concern was voiced in Everett that we had a problem in the Pitot region and we wanted to do everything we could to satisfy our customers' needs," McMullen said.

"Our people down on the floor really took a stand to cooperate with them all the way through it."

It wasn't easy. McMullen's group had to make considerable changes in its assembly process, adding time up front.

At first, Wiederkehr said, an attempt was made to shim the skin in the Pitot-static area to a target of 60-thousandths of an inch tolerance

See RIPPLE, Page 12

Integrated-systems lab opens, marking milestone of progress on way to service-ready 777

The Boeing Integrated Aircraft Systems Laboratory was formally opened last week in a ceremony with speakers perched high on the vertical stabilizer of the huge "iron bird," a steel framework on which flight controls are tested.

"We're going to spend a few minutes this afternoon not really dedicating but putting a milestone on the schedule for this new, impressive facility," said Dick Day, director of Engineering Laboratories for the Boeing Commercial Airplane Group Engineering Division.

The IASL, which was ready for

full occupancy Oct. 2, was built so that integrated testing of new-airplane systems can be done before the systems are installed in the airplane.

On earlier airplane models, integrated systems testing could only be done on the airplane.

IASL testing, central to Boeing meeting its promise to customers to deliver a service-ready 777 in May 1995, also will support all other Boeing commercial airplanes.

Day, master of ceremonies at the Nov. 25 event, praised the teamwork involved in the design and building of the complex, 518,000-

square-foot laboratory on the Duwamish River in south Seattle.

"This whole facility," he said, "was developed with a large set of teams from many disciplines throughout the company and the subcontractors that supported us."

Day introduced two Boeing Commercial Airplane Group speakers: Bob Davis, vice president of the Engineering Division, and Alan Mulally, vice president and general manager of the 777 Division.

"I think this is really a very good example of what a team can do,"



Bob Davis, left, vice president of the Boeing Commercial Airplane Group Engineering Division, and Alan Mulally, vice president and general manager of the 777 Division, were the main speakers at the formal opening of the Integrated Aircraft Systems Laboratory last week. They said the laboratory is essential in delivering a service-ready 777 in May 1995 and ensuring customer confidence in the quality of the 777 and other new Boeing aircraft.

See IASL, Page 12

FOCUS ON COMPETITORS

Airbus delays A319 — A lack of orders has caused Airbus Industrie to delay launch plans for its 130-seat A319 jetliner, according to The Wall Street Journal.

Airbus began prospecting for A319 customers in May, hoping to have enough orders to move into the initial study and design phase of the program at the end of this year.

Lufthansa demonstrates A340 — Lufthansa German Airlines conducted demonstrations of its new Airbus A340 jet last week, making a nonstop, 15-hour flight from Frankfurt to Honolulu.

The German carrier has ordered two versions of the four-engine wide-body jet, the first of which is scheduled for delivery in January. An aviation consultant told the Journal of Commerce that the A340 has reasonable potential in the long run. He said the jetliner fits the market between the Boeing 747-400 and the MD-11.

McDonnell slashes MD-12 outlays — McDonnell Douglas has cut development spending on its MD-12 jetliner program by two-thirds this year, according to The Wall Street Journal.

Spending on development of the double-deck aircraft will shrink to \$11 million in the fourth quarter. Spending fell to \$20 million in the third quarter from \$30 million in the first two quarters of this year.

The cutbacks amplify questions about the future of Douglas Aircraft, the Journal said. Managers at the division have said the MD-12 is needed to enhance the company's product line to allow its survival in the commercial market.

McDonnell Douglas also disclosed in its quarterly report to the Securities and Exchange Commission that it has had no recent discussions with prospective MD-12 investors in Taiwan.

At one time Taiwanese investors were central to the MD-12 project. McDonnell plans to make a decision next year on whether to continue with development of the aircraft, the Journal said.

In a related article, the Journal of Commerce said China's aviation industry is seeking more links with foreign companies after its agreement to produce 40 commercial jets with McDonnell Douglas.

A McDonnell Douglas spokesman said a larger project for co-production of another 130 jets is under negotiation.

Douglas was credited by the Journal of Commerce with pioneering co-production in China in 1985, with 25 MD-82s. A second deal followed in 1990 for five more MD-82s and five of the derivative MD-83s.

The most recent agreement covers 20 MD-80s and 20 MD-90s.

MD-11 training success increases — Douglas Aircraft has cut the failure rate for pilots making the transition from aircraft with conventional instruments to glass-cockpit aircraft using computerized display panels, such as the MD-11.

Key to the training is providing more hands-on experience in part of its MD-11 simulator training, according to Aviation Week & Space Technology.

The flunk rate for experienced airplane pilots training for their first "glass-cockpit" aircraft was about 40 percent in the early years, according to Aviation Week. A few pilots even looked with hostility at the computer-dominated flight deck.

Douglas devised a new training approach to solve the high failure rate, focusing on intermingling academic instruction with simulator practice sessions. Although the MD-11 ground school is more expensive than others, the reduction in actual flight instruction more than compensates for the cost difference, Aviation Week said.

The new approach has been successful, Aviation Week said. Out of 900 pilots moving up to complex automated aircraft, only four did not initially pass the oral exams that preceded the flight simulator training, and they passed the next day.

B-1B bomber crashes

A B-1B bomber based at Dyess Air Force Base, Texas, crashed late Monday evening southeast of El Paso.

According to an Air Force spokesman, the aircraft was on a low-level training mission at the time of the accident and was not

carrying munitions.

All four crewmen on board were killed, according to the Air Force. A board of officers will investigate the accident.

Boeing Defense & Space Group designed, built and supports the B-1B's offensive avionics. ■

Space station work honored

James Smith, general manager of Information Services - NASA programs for Boeing Computer Services, has received a NASA award for outstanding support and contribution to the Space Station Freedom Program through his management of the Technical and Management Information System (TMIS) contract.

Smith was the Boeing program manager for TMIS from September 1989 to August 1992.

In the nomination letter, he was recognized for "vastly exceeding the ideals of sustained superior performance."

He has "consistently sought to

inspire his team members to deliver new innovations, higher levels of service, and more timely/cost-effective systems than those which are contractually required," the nomination read.

The letter went on to describe his leadership in initiation of a number of Continuous Improvement/Total Quality management initiatives that "served as a role model for the Space Station Freedom Program."

Smith received his award from Daniel Goldin, NASA administrator, and Darleen Drayton, NASA chief of staff, at a ceremony in NASA headquarters at Washington, D.C. ■

Boeing picks up top honors for Savings Bonds promotion

For the third consecutive year, Boeing has won the top award for "Best Multimedia Campaign," for promotion of the U.S. Savings Bonds payroll savings plan.

In addition, Boeing won a first-place award for its "We Believe in Bonds" flag-fold poster in the original poster/large company category.

Boeing Defense & Space Group received an honorable mention for its "Pyramid Scheme that Really Works" brochure in the promotions category.

Writers, editors, designers, artists and video producers from 37 companies and government agencies were honored by Kate Todd Beach, acting treasurer of the United States, in the 24th annual communicators' awards ceremony Nov. 20 in Washington, D.C.

Winning entries in the competition sponsored by the Treasury Department's U.S. Savings Bonds Division were selected from more than 400 entries in 15 categories.

Representing 1991-92 campaign chairman Gordon Bethune at the awards ceremony was campaign

director Charles Childers.

"These awards demonstrate that our Boeing Savings Bonds campaign teams were consistently among the best in the nation," Childers said. "All of the members of the 1991-92 Boeing Savings Bonds team can be proud of their contributions."

The communicators' competition is designed to recognize the outstanding creative work of communications professionals who promote the U.S. Savings Bonds payroll savings plan in their companies or agencies.

Acting Treasurer Beach commended guests for their support of the volunteer tradition that started when the Series E Bond was first issued in 1941.

"Your grass-roots partnership joining volunteerism and communication connects us with more than 47,000 companies and organizations," she said. "Your work delivers the message about Savings Bonds to countless numbers of people."

Beach added that the efforts of the communicators and their or-

ganizations helped to raise Savings Bonds sales for fiscal year 1992 to a new record of \$13.59 billion, which is a 48-percent increase over sales in 1991.

The following Boeing employees were recognized for their winning entries at the awards ceremony:

First Place, Best Multimedia Campaign:

George Costa, Luis Rivera, David Bunnagasser, Gary Sizemore, Karin Czulik and Geoffrey Hunt, all 4-8328; Don Ross, Jeanne Mehan and Midori Sumida, all 4-8387; Robert Olson, 4-8428; Marisol Graue, Danny Chen and Traci Hahn, all 4-8334; Rita Dally and Mary Pekasky, M-7691; Barbara Reid, 4-8487; William Wright, 4-8337; and Judy Fara, 6-3R14.

First Place, Original Poster/Large Company:

Olson, Costa, Rivera and Ross; and Lisa Fusch Krause, 4-8387.

Honorable Mention, Best Promotion:

Faye Hilary Lomax, 4-8428; Patricia Mauser, 4-8387; Jay Mullins, 4-8328; and Fusch Krause. ■

At home or at work, guidelines exist that keep festivities safe

Boeing Security & Fire Protection offers the following guidelines and company rules to help employees keep the holidays safe at work and at home:

AT WORK

Table-sized Christmas trees, boughs, holly and similar material may be brought into Boeing plants during the 10 working days prior to the holidays. Combustible decorations should be held to a reasonable minimum so as not to create fire hazards.

Electric lights and candles are not allowed. All holiday decorations are subject to inspection and approval by Boeing Fire Protection, and must be removed from all company facilities prior to company closure (this year beginning Thursday, Dec. 24).

Gifts that have been opened may be inspected by security officers when they are removed from the plant. Boeing Security also reminds

all employees that alcoholic beverages are prohibited on company property.

AT HOME

Natural Christmas trees, although attractive, can be a fire hazard. Select a freshly cut tree a short time before the holidays, remove its resin-coated end and set it in a sturdy, "non-tip" tree stand (check packaging for this instruction).

Be sure the trunk always is immersed at least one inch in water, and check water level daily. Don't locate the tree near sources of heat, such as radiators, hot air ducts, television sets and so forth.

Despite their festive touch, Christmas trees pose an increasing fire hazard as they dry out. Be sure to take them out of the house shortly after the holidays.

Artificial trees also need care in selection and handling. Plastic trees will burn, and metal trees may present a shock hazard unless in-

direct lighting is used. Artificial trees should bear the Underwriters Laboratories (UL) label, indicating they have demonstrated that they are far less combustible than natural trees.

Candles are very dangerous and should not be used for tree lighting or displays in combination with combustible materials such as boughs, cotton batting or foamed plastics. Inspect old lights for worn or frayed wires, loose connections, broken sockets or plugs, and replace them if they are damaged.

Use extension cords sparingly, and don't place them near foot traffic, across doorways or under rugs. Don't overload electrical circuits with numerous light strings. Turn off all holiday lighting and extinguish candles before leaving the house or going to bed.

Boeing Security & Fire Protection wishes employees and their families safe and joyful holidays. ■

China Airlines 747 to be modified

Boeing Commercial Airplane Group, Wichita Division, has received the first 747-200 jetliner to be modified in Wichita for Taiwan-based China Airlines.

Boeing Wichita's Modification Responsibility Center will reconfigure the Combi aircraft, which carried both passengers and cargo on the main deck, into a full freighter.

The contract calls for Boeing to replace selected main-deck floor beams, seat tracks and floor panels to strengthen the main-deck floor and install three upper-deck crew rest bunks and a powered cargo-handling system.

On completion, Boeing will cer-

tify an increase of the airplane's maximum zero-fuel weight.

Redelivery to China Airlines is scheduled for February 1993.

China Airlines has a fleet of 12 Boeing 747s, including the Combi

being modified.

Boeing Wichita has modified 53 747s to the freighter configuration and, counting the China Airlines 747, has four 747 modifications in progress. ■

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BOEING

BOEING NEWS

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'You can get a good education... instead of living on the streets'

by Rick Roff

Boeing News, Seattle

Reading is important. The Boeing Company is convinced of this. So is Heather Belcher, 9, of Des Moines. "I like books because they give me ideas for school projects, an invention or a good imagination," she said in a letter. "I can learn more about things by reading. You get to learn big words like *Indianapolis*."

Heather is one of many Puget Sound-area children who responded to a KCPQ-13 contest challenging students to write a story about why they like to read. The contest was run in conjunction with Read a Book, a Boeing advertising campaign that emphasized why it is important for people, particularly children, to learn to read.

Several excerpts of those stories are printed here exactly as they were received. Even spelling has not been changed in order to preserve the innocent.

"You can learn to write and get a good education or job instead of living on the streets, because you don't know how to read or write," Heather further explains.

"My best times to read are at school, after school or after dinner. If you know how to read, you know what people are talking about. You learn to pernoctance words properly."

Fred Kelley, Boeing Corporate manager of advertising and promotion, said the letters are heartwarming proof of how significant reading is to today's children.

"Many children have offered their insights into the importance of reading through the stories they wrote," Kelley said. "It is very gratifying to

see that there still are a lot of kids out there who not only understand the value of reading, but who genuinely find enjoyment in it."

Dave Osmer, manager of Corporate Community Relations, said reading is one of the core skills for achieving a lifelong educational experience.



"Reading is a critical element in improving education in America," Osmer said. "And it is vital to both the community and the company." Children of many ages agree, evidenced by their scripts.

Ginger Thompson, of Tacoma, said reading is important "because it lets your imagination go on adventures without leaving the room. And it is also something fun to do on a rainy day."

Katrina Wetterhus, 7, of Port Orchard, said she likes to read because it's something she can do on her own, and it helps her get from Point A to Point B.

"I don't have to ask my parents to read to me. My favorite types of books are ones with chapters in them. I also like to read the road signs when we travel so I know where we are going."

Alexandra Pirk, 5, of Bellevue,

indicates that reading promotes continuous quality improvement, a topic that Boeing employees know a lot about.

"I love to read because when I read I can learn harder and harder words. I get better and better."

Peter MacLean, of Marysville, said "it is important to read because you need it to do stuff. I like mysteries and super hero books. They're my farrir books to read! Cooking, spelling and looking at signs. You just have to read."

Jennifer Shull feels fortunate to have reading abilities, "and you are to. You and I are one of the many people who can read. Many other kids around the world can't read. I am sure that they would like to though."

"Reading is fun and educational. There are lots of selections of books, so if you are out playing sports and it starts to rain, then go inside and read about them! Ever wonder who made ghosts and goblins or who made God? Well, go to your library and read about it!"

"Books should be part of every one's life. God gave us books as a very special gift, we should use that gift and appreciate it, too!"

Heather Cud, 15, of Marysville, said she always learns something new through reading.

"Either how to spell a new word or just learn the theme of the story. If I take what I learn and apply it to my everyday life, maybe things will turn out better than it did in the book. Just like if I had not read this newsletter, I would have never known about this contest."

"It is good to read because the more you read the more you learn and become a better reader. Sometimes you also become a better listener. I try to encourage my friends and family to read more often. I try to help the little kids that I babysit to read."

Sarah Franklin believes it is important to learn to read because "it will help you a lot in school and it will help you live for the rest of your life."

Jennifer Taylor, 11, of Seattle, loves to read mysteries. She also loves to type, since that's the way she sent her letter.

"I can sit down with a mystery book, find all the clues, and solve it before it says in the book. I also love action books. The books that have the spine tingling action that puts you at the edge of your seat. That you can't keep your face out of the book."

"I enjoy just getting comfortable and snuggle down on the couch and read, what fun! I like it where I'm reading a Nancy Drew book (mystery) all of a sudden I'm Nancy Drew in Secret of the Old Clock. Or, I'm in a high speed car chase or in the wild west watching a famous gunn."

"When I read it's like living through another life or lifetime. Like a soldier in the Vietnam war or when Columbus discovered America... You can picture it yourself. You can imagine what you want, not what the L.C. puts in your head."

"There, that's why I, Jennifer Taylor love to read." ■

Reported Elsewhere

Aerospace electronics giant born

The acquisition of General Electric's aerospace division by Martin Marietta will create the world's largest military electronics firm. The \$33 billion deal will double the size of Bethesda, Md.-based Martin Marietta, according to The Washington Post. Defense industry executives predicted the marriage of the two operations would accelerate the pace of defense company mergers and acquisitions. An example of the new marketing power of the combined firms is that in the future Martin Marietta will be able to combine its own Titan rocket boosters with GE's communication satellites, and its battlefield missile systems with GE's radars.

U.S. technology assessed

Crucial American high-technology industries, including consumer electronics and robotics, may have lost ground in the 1980s to foreign competitors, according to The New York Times. Quoting a General Accounting Office report, the Times said the United States lost ground in 10 of the 11 sectors surveyed. The sectors were semiconductors, semiconductor equipment, supercomputers, pharmaceuticals, telecommunications, fiber optics, robotics, consumer electronics, civilian aircraft, advanced materials and flexible manufacturing systems.

Way cleared for An-124 certification

The FAA has resolved an aircraft certification problem with the Commonwealth of Independent States, clearing the way for operation of Ukraine's An-124 heavy-lift transports in the United States. Aviation Week & Space Technology said An-124 certification is representative of the challenges faced by countries of the former Soviet Union seeking to expand use of their aircraft. Some aircraft only went through Soviet military qualification procedures, Aviation Week said. Others received civil certification that might not meet Western standards.

Instability draws NATO attention

NATO is concerned that growing instability in the former Soviet Union is enabling Russian military hard-liners to regain power, according to Aviation Week & Space Technology. If they do, they may be able to thwart the military cooperation that had been building between Russia and the alliance's allies. Evidence of the shift is being seen in Russian doctrine and in individuals Russia is assigning to military leadership positions, Aviation Week said.

Air Force may get new booster

NASA was willing to let the Air Force take over development of the next-generation U.S. space-launch vehicle, as recommended by a White House study group, if the space agency could take part in developing the launcher's engine. According to Aerospace Daily, tighter budgets and a lack of near-term payloads argue against NASA maintaining a role in development of a new U.S. booster. However, the space agency wants to continue developing a new liquid-fuel rocket engine for its longer-term requirement to resupply the international space station with crews and cargo, the Daily said.

Work starts on Seoul airport

Ground has been broken for the New Seoul Metropolitan Airport on two islands about 31 miles from central Seoul, according to Aviation Week & Space Technology. When finished, the airport will be the largest in Asia, costing \$13 billion. As envisioned, the 24-hour airport will be a major Northeast Asia hub and gateway for South Korea's trade with China. Completion of the first phase is set for 1997, a schedule most airport authorities believe will be met, Aviation Week said.

Books for Kids seeking a payload

Filling the cargo hold of a Boeing 737 airplane is an easy task when dealing with luggage, but imagine how many books it would take to do the same thing.

That's the goal of the Boeing Employees Community Outreach program, which since June has collected more than 14,000 books in the Books for Kids literacy program and has geared up the drive during this holiday season.

Majid Abah, chairman of Boeing Books for Kids, said employees send books to Boeing mail stop 30-PA every day. They are then delivered by the Outreach program to the Washington State Books for Kids organization for distribution.

"We have a ways to go to make our goal," Abah said of the 737 cargo plan that ends Dec. 14. "But we are very confident that we'll get there."

EIT review at Cogswell

Cogswell College North will provide a college credit engineering training review course consisting of 11 four-hour sessions beginning Jan. 16.

Anyone interested in learning more about the review or the April EIT examination may call the college in Kirkland at 822-3137.

Cogswell offers evening classes leading to a number of bachelor of science degree programs.

Winter-quarter registration will be Dec. 2-3 and Jan. 5-7, with winter-quarter classes beginning Jan. 11. ■

Maybe reminding people what we're doing will help."

The year-round Washington State Books for Kids program was started in 1990 by a Leadership Tomorrow project team. The program is a joint community project of the public library systems in the Puget Sound region in partnership with numerous booksellers, literacy agencies and companies, including Boeing.

Dave Osmer, manager of Corporate Community Relations, was a member of that project team and still serves as vice chairman of the group's advisory board.

Osmer said the intent of the project is to get books into the hands of at-risk youngsters through age 9 from six Washington counties: King, Snohomish, Kitsap, Pierce, Thurston and Mason.

Books for Kids supplies new books to children who have few or no books in their home. Further, the goal is to make owning and reading books a vital part of children's early childhood experience.

"We are delighted that the Employees Community Outreach program is helping us dramatically in-

crease the number of books we will have to distribute," Osmer said. "The demand is always greater than our supply."

Abah said books are distributed at reading events held throughout the Puget Sound area in libraries, schools, homeless shelters, human service agencies and other facilities that serve disadvantaged children.

"Most of the children who receive books through the Books for Kids project come from homes where there is no money to purchase books; many are from homeless families," said Abah, who is manager of the Boeing Commercial Airplane Group, Fabrication Division, Industrial Engineering Estimating organization.

"At reading events, children take part in a reading activity, such as a storytelling hour, and afterwards get to choose a book to take home with them."

Inside Boeing, books can be sent to M/S 30-PA. Outside Boeing, books can be dropped off at Books for Kids collection bins available at most public libraries or sent to Books for Kids at 2209 Eastlake Ave. E., Seattle, Wash., 98102. ■

SPEEA ballots due Dec. 7

Members of the Seattle Professional Engineering Employees Association have until Dec. 7 to return their mail ballots on a contract offer tentatively agreed to by the company and union negotiating teams.

Proposals and ratification ballots for the Engineering and Technical units were mailed by SPEEA to members Nov. 25. They have 10 days to study and return the ballots.

Boeing earlier agreed to extend the current contracts' expiration dates through Dec. 7 to accommodate the mail-vote process.

SPEEA represents more than 15,000 engineers and 13,000 non-exempt technical employees in Washington state, California, Oregon, Utah and Florida.

Childhaven helps break the cycle of abuse

"Many children get Twinkies for dinner. They get lice, crabs or even gonorrhea from unclean parents or siblings. They don't have shoes or clothes that fit. For many, the only kinds of touching they get are beatings, torture or sexual molestation."

— Childhaven brochure

by Rick Roff
Boeing News, Seattle

Patrick Gogerty is convinced that abused children who do not get the help they need are caught in a cycle from which there is no escape.

"Look at our state prisons," said Gogerty, executive director of Childhaven, a treatment program for abused and neglected preschoolers. "Eighty percent of the inmates were abused and neglected as children. They went on to abuse others because that's the way they were nurtured, it's all they knew."

Gogerty said the first time an abused child meets a police officer it's often as a victim of abuse or neglect. The next time it's after having committed a crime, and the imprisonment of such criminals costs taxpayers \$120 million a year.

But he said some children pay a higher cost of abuse. They pay with their lives.

"Many parents want the best for their children but are emotionally or physically unable to provide it for them," Gogerty said. "That's where Childhaven comes in. We not only help the children, we help the parents."

And they do so at four different locations in the Seattle area. At the



Boeing Employees Good Neighbor Fund allocated \$100,000 to Childhaven for a kitchen at the agency's newest location in Auburn, which will be capable of preparing 400

meals a day. The new center will contain classrooms, rooms for physical, occupational and play therapy, and counseling and nursing services, as well as an Early Education Mobile

Resource Unit providing training to licensed day care homes and centers in the South King County area.

Children are referred to Childhaven by Children's Protective Services when the child is in danger but the parent appears motivated to change. The agency handles more than 42,000 cases of child abuse and neglect every year.

"As a result, Childhaven offers support groups, individual counseling, parenting classes and other family services to help parents in their

efforts to love and care for their children in a healthier way," Gogerty said.

Childhaven's progressive approach for the treatment of abused or neglected children and their families is called therapeutic child care — treatment for emotional and physical abuse and neglect.

"Children stay at Childhaven six and a half hours every day and receive regular meals and baths; play and take naps; get hugs, love and lots of personal attention," Gogerty said.

meals and 250 nutritional snacks a day for more than 100 children, parents and visitors. The new location will take the place of a failing 30,000-square-foot shopping mall.

Childhaven's progressive approach for the treatment of abused or neglected children and their families is called therapeutic child care — treatment for emotional and physical abuse and neglect.

"Children stay at Childhaven six and a half hours every day and receive regular meals and baths; play and take naps; get hugs, love and lots of personal attention," Gogerty said.

Medical, emotional and developmental needs are closely assessed by a staff of professionals who specialize in the various aspects of treating victims of physical, sexual and emotional abuse. The children's home environment also is monitored to ensure that mistreatment is not continuing.

"We give children an opportunity to experience a non-violent, supportive and nurturing environment," Gogerty said. "It gives them an opportunity to bond to positive social values."

Gogerty said research shows how successful the therapeutic child care model can be. In one study, children attending Childhaven were found 66-percent less likely to suffer further abuse while in the program. Another study showed that Childhaven families were more stable and less likely to move away.

The program is limited, however, in the number of children and families it can help. With the new facility in Auburn, about 350 children can be accommodated by Childhaven at one time in the greater Seattle area.

That's only a fraction of the 10,000 cases Child Protective Services sees each year who need this type of program," Gogerty said.

Sometimes needs of the children are extremely complex, Gogerty said, but their desires are much simpler than one might ever anticipate.

"One year we asked some of the children what they wanted for Christmas," he said.

One child wanted a hamburger and french fries; another just wanted a clean bed to sleep in. ■

Funds allocated to area United Ways, agencies

A \$100,000 grant from Boeing Employees Good Neighbor Fund to Childhaven was part of \$1,409,140 allocated to agencies in May.

The grants, including those to United Ways, serve communities where Boeing employees live and work.

BEGNF made payments on pledges during the month to Puget Sound-area United Ways for the counties of King, \$807,631; Snohomish, \$193,408; Pierce, \$151,275; Kitsap, \$6,681; Island, \$6,736; Skagit, \$4,649; Thurston, \$3,773; Mason, \$777; Whatcom, \$691 and Lewis, \$299.

Funds held in reserve were re-

leased for Community Enterprise of Issaquah, \$40,000; Washington State Head Injury Foundation, \$20,000; and Cardio & Pulmonary Rehabilitation Institute, \$20,000.

BEGNF also allocated employee membership funds for the capital needs of the following Puget Sound-area agencies:

■ Pediatric Interim Care Center, \$8,310 to purchase medical equipment to help care for drug-affected, medically fragile infants in Washington State. The agency provides foster care recruitment, therapeutic foster parent training and on-going training and support for foster families.

■ Multiple Sclerosis Association

of King County, \$13,830 for a social worker who will visit homes to help individuals with multiple sclerosis become self-sufficient. The social worker will provide service to 120 clients with multiple sclerosis over a 12-month period.

■ Kitsap Community Action Program, \$8,010 to purchase a photocopier to help with the communications of all the agency's programs, which include housing, emergency food for the homeless, job training, nutrition services for pregnant mothers and infants, energy assistance and weatherization for low-income and elderly. Head Start pre-school program, meal meals for the elderly and day

care.

■ Center for Human Services, \$10,300 for computer equipment and electrical circuit installation, which are necessary to keep up with the expanding role of the agency's services, including drug and alcohol assessment and treatment, teen-age school dropout prevention, sexual-abuse counseling and support services for more than 6,000 individuals in north King and south Snohomish counties.

■ United Way of Skagit County, \$10,270 to purchase computer and telephone equipment and replace outdated systems, which will help the staff support fundraising and allocation tasks. ■

BEGNF grants companywide

Boeing Employees Good Neighbor Fund committees across the country made grants in May from funds donated by employees working in the following areas:

■ Barbara Point, Hawaii: Hospice Hawaii, \$3,500.

■ Rosslyn, Va.: Family Respite Center, \$2,000; The Boarder Baby Project, \$2,000; Martha's Table, \$2,500; St. Ann's Infants Maternity Home, \$2,000; The Hospital for Sick children, \$1,500; Christ House, \$2,000; So Others Might Eat, \$2,000.

■ Vienna, Va.: Northern Virginia Family Service, \$5,000.

BEGNF distributes emergency grants to Puget Sound agencies

Listed below are emergency grants allocated by the Boeing Employees Good Neighbor Fund board of trustees during November.

The grants, which amounted to \$144,700, are used for such emergencies as medical or dental visits, shelter or to replenish food bank supplies.

They were:	
45th St. Community Health Clinic	\$2,000
Advocates, Resources, Counseling for Persons with Developmental Disabilities in King County, also known as APC of King County	\$1,000
Alternatives to Hunger	\$1,500
American Red Cross	\$2,000
Anacortes 100 Food Bank	\$2,000
Asian Counseling & Referral Service	\$2,000
Catholic Community Services - Seattle/King County	\$2,500
Central Area Citizens of Seattle	\$2,000
Center for Battered Women	\$2,000
Church Emergency Response Network	\$2,500
Citizens Against Domestic Violence	\$1,600
Cocoon House	\$1,000
Community Action Council of Lewis,	

Mason & Thurston Counties	\$7,500
Community Care Program	\$1,000
Community Youth Services	\$1,500
County Hotline & C.A.R.E. Services	\$1,500
E.M.M./Northwest Harvest	\$10,000
Food Lifeline	\$10,000
Helpline House	\$3,000
Housing Hope	\$2,500
Kitsap Community Clinic	\$2,000
Lewis County Food Bank Coalition	\$4,000
Matlock Community Church	\$1,000
Metropolitan Development Council	\$2,500
North Whidbey Help Inc.	\$1,000
Parent Support Project	\$500
Pathways for Women	\$2,500
Recovery	\$2,500
Safeplace	\$2,000
Saint's Pantry	\$1,000
Salvation Army, Everett	\$7,000
Salvation Army, Lewis County	\$2,500
Salvation Army, Seattle	\$7,500
Salvation Army, Skagit	\$2,000
Salvation Army, Thurston County	\$1,500
SEA-MAR Community Health Center	\$1,500
Seattle Indian Health Board Inc.	\$2,500
Senior Services of Seattle	\$4,000
Senior Services for South Sound, Mason	\$1,500
Senior Services for South Sound, Thurston	\$1,500
Simon of Cyrene Society Inc.	\$600
Skagit Community Mental Health Center	\$1,000
Skagit Council on Aging	\$4,000
Skagit County Community	\$1,500
Skagit Rape Relief and Battered Women's Services	\$2,500
Society of St. Vincent de Paul, Bremerton	\$5,000
South Kitsap Community Referral Helpline	\$1,500
The Opportunity Council	\$1,000
Thurston County Food Bank	\$1,000
Traveler's Aid Society	\$1,500
Union Gospel Mission Association of Seattle	\$2,500
United Citizens Betterment Organization	\$1,500
University District Food Bank	\$2,500
Volunteers of America Puget Sound	\$2,000
Volunteers of America Snohomish County	\$2,500
Wallingford Volunteer Food Community	\$1,500
West Seattle Helpline	\$1,500
YWCA Kitsap County	\$1,000

♥ Merci! Mabalot Danke Schoen!
Gratias!

A world of thanks to Boeing volunteers
for our new sidewalk! 감사합니다.

Boeing 787-9000 C7AC 450

Dennis Eganey
Dennis Eganey
Associate Director
Tacoma Community House

♥ Your generous support of our
program has enabled over 2,000
children to experience a safe and
happy day at our ranch. Thanks so
very much to you all.

Tom Burkholder

Tom Burkholder
Program Director
Forgotten Children Therapeutic Horseback
Riding and Ranch Program, M Bar C Ranch

♥ Southeast Community Alcohol
and Drug Center thanks BEGNF and
the Boeing employees for their care
and support. Change only comes with
a combined effort.

Greta Olson

Greta Olson
Certified Chemical Dependency Counselor

Phil Shoverstead
Executive Director
SEACDC

♥ The BEGNF makes a world of
difference in the lives of our most
needy citizens. Our community is
a better place because of your
leadership.

Jack Healy

Jack Healy
President
United Way of Snohomish County

♥ On the behalf on United Way
of King County volunteers, staff,
agencies, and clients, please accept
our thanks for your generosity and
spirit of caring. You truly have
demonstrated that given the
opportunity, and through a united
effort, we can improve the quality of
life for those who need help. For them
and for us, once again, "Thank you."

Bobbie van der Voort

Bobbie van der Voort
President/Chief Professional Officer
United Way of King County

♥ The kids in the Rainier Valley say
"thanks" to the Boeing employees for
the new gym and locker rooms at the
Union Gospel Mission Youth Center.

Harb Pittman

Harb Pittman
Executive Director
Union Gospel Mission

♥ Thank you for the new computer
system. We are now able to more
quickly track field workers and
identify sources of food and shelter
during local disasters. This new
computer system will basically allow
our staff to spend more time serving
the public and less time on paperwork.

Ron West

Ron West
Executive Director
Snohomish County Red Cross

♥ Boeing employees are the
role models of caring around
Puget Sound. Thanks for making
a difference in Pierce County!

Frank Nagel

Frank Nagel
President
United Way of Pierce County

♥ Thanks to you, Kitsap
Community Action Program improved
our services to 6,000 low-income
families in Kitsap County with
improved communication equipment.
We do appreciate you!

Larry Eyer

Larry Eyer
Executive Director
Kitsap Community Action Program

♥ Thanks to you, many people
who would otherwise go hungry in
Western Washington will be fed!
Good job!

Winfred Nagels

Winfred Nagels
Executive Director
Food Lifeline

♥ Thank you for helping adults
with disabilities help themselves!
You've given Custom Industries your
time, talent and much needed
equipment. We're deeply grateful.

Lynn Johnson

Lynn Johnson
President/CFO
Custom Industries

♥ Bless you all for your
contributions to our community!
Thanks to each of you, Faith Homes
is now able to provide comprehensive
residential care to troubled and
delinquent teen mothers and their
infants. Without your compassion and
hard work, the ten mothers would have
nowhere else to turn!

JULIE BONSTEEL

Julie Bonsteel
Executive Director
Faith Homes, Tacoma

Thanks Boeing

♥ Thank you for helping the
American Red Cross help those in
need. Your support is sincerely
appreciated and truly makes a
difference.

DAVID SIEBERT

David Siebert
Manager
Seattle-King County Chapter
American Red Cross

♥ The entire Maple Valley
community appreciates what you've
done for us over the years. Thanks
for the new roof. Stop by and visit
sometime!

Michael LaFreniere

Michael LaFreniere
Executive Director
Maple Valley Community Center

♥ You give self-esteem and pride
to many people — by giving them the
opportunity to work for a living. Your
gift to Goodwill makes jobs! Thank
you.

Mike Dabbs

Mike Dabbs
Executive Director
Tacoma Goodwill Industries

♥ Thanks, Boeing employees, for
your generous hearts. You've helped
to give homeless families a new start.
Pierce County is a better place because
you're there. We at Helping Hand
Homes are glad you're there!

Margie Addington

Margie Addington
Executive Director
Helping Hand Homes

♥ On behalf of the 5,500 women
and children in East King County
fleeing domestic violence each year,
thank you for your part in making
confidential shelter possible.

Aggie Sweeney

Aggie Sweeney
Executive Director
Eastside Domestic Violence Program

♥ Thank you, Boeing employees
and BEGNF. The King County Labor
Agency, AFL-CIO, salutes your great
contribution to our community.

Myron Miner

Myron Miner
Executive Director
King County Labor Agency, AFL-CIO

Nobody knows about what than you

♥ Deepest appreciation for
continued generosity in both
leadership volunteer time and
resource sharing!

Thomas Robinson

Thomas Robinson
Executive Director
North Byram Children's Center

♥ Thank you for helping us to get
homeless families back on their feet!

Martha Wits

Martha Wits
Executive Director
Seattle Emergency Housing Service

♥ Thank you for assisting the
South Whidbey Children's Center in
the purchase of our new portable for
our before and afterschool programs.
We love our new home!

Barbara "Misty" Donath-Halliday

Barbara "Misty" Donath-Halliday
Executive Director
South Whidbey Children's Center

♥ Your concern for young children
with special needs encourages us to
work diligently as they strive for
independence. Snohomish County
families appreciate your support!

Barb Munson

Barb Munson
Executive Director
Little Red School House

♥ Thanks for your generous
contribution to help the Boys and Girls
Clubs of Snohomish County build a
new facility for youth in North
Snohomish County.

Bill Toulakos

Bill Toulakos
Executive Director
Boys and Girls Clubs of Snohomish County

g Employees!

ows more
t you do
e do.

♥ The Boeing Employees Good Neighbor Fund has helped the YWCA provide shelter, child care, and employment assistance to homeless and low-income families. On their behalf, thank you!

Nita Ryder
Nita Ryder
Executive Director
YWCA of Seattle-King County

♥ Thanks to a \$100,000 grant from BEGNF, Children's new Auburn center will have a modern kitchen which will serve 117 abused children a day. Your generosity will enrich the lives of hundreds of children treated at Children's each year.

Thank you!

Patrick L. Gogarty
Patrick L. Gogarty
Executive Director
Children's

♥ Thanks for your steadfast support year after year. It's great to have you at our side as we work to build new family traditions.

Ruthann Howell
Ruthann Howell
President/CEO
Family Services

♥ Thank you, Boeing employees, for caring about youth and families. You're great!

Cathy J. Muray
Cathy J. Muray
Executive Director
Center for Human Services

♥ Boeing employees and Senior Services are a winning team. Together, we are helping needy, low-income seniors remain independent in their homes.

Thanks from all of us.

Leo Desches
Leo Desches
Chief Executive Officer
Senior Services of Seattle-King County

♥ From "Griffin Home" to "Coming 2," you've supported tens of thousands of at-risk youth we've served — for over 30 years! Because you've been there, they've taken their places as parents, employees, and citizens.

Howard Flack
Howard Flack
President
Friends of Youth

♥ In every language "thank you" conveys our deep appreciation for your generosity and caring.

Can on ありがとう
感謝状 贈呈
FAAFETAI TEL 76486441
SAKUNAT POI
Theresa Fujiwara
Executive Director
Asian Counseling & Referral Service

♥ Thanks for helping your neighbors living with multiple sclerosis.

Marlene Lasher
Marlene Lasher
Executive Director
Multiple Sclerosis Association of King County

♥ Cancer Lifeline serves more and more people because you give more and more — you care about your community!

Barbara Frederick
Barbara Frederick
Executive Director
Cancer Lifeline

♥ Thank you for all your support. BEGNF has truly been a longtime friend of the Crisis Clinic.

Roy Sargeant
Roy Sargeant
Executive Director
Crisis Clinic of King County

♥ Thanks Boeing employees for your great generosity to Auburn Youth Resources. The shelter was wonderfully transformed during the Day of Caring. Thanks for all.

Dick Brugger
Dick Brugger
Executive Director
Auburn Youth Resources

♥ More than 500 disabled, abused, and medically complex children and their families send thanks. You're a blessing to our community.

Mimi Siegel
Mimi Siegel
Executive Director
The Merrywood School

♥ Community Services for the Blind and Partially Sighted is so grateful for all you do — volunteering, funding, caring. Thanks so much.

Joan Mansfield
Joan Mansfield
President/CEO
Community Services for the Blind and Partially Sighted

♥ Thanks Boeing Employees! Together, you have created new lives for homeless families. Your labor, your spirit, your love, your caring, have rekindled hope.

Gratitude from many,

Anna Gordon
Anna Gordon
Director
Pathways for Women
Shoshoneish County

♥ Big Brothers of King County established an Eastside Office in Kirkland serving over 150 families. Your grant of over \$11,000 for a computer network system made our service efficient, prompt, and fast growing.

Thank you for caring and sharing. We will pass on your caring spirit to our clients.

Christopher Breen
Christopher Breen
Executive Director
Big Brothers of King County

♥ Please accept our deepest thanks to the Boeing employees for helping to improve the quality of life for people with disabilities. Thank you!

Greg P. Payton
Greg P. Payton
Executive Director
United Cerebral Palsy of King-Shoshoneish Counties

♥ Your generous donations to Domestic Abuse Women's Network (DAWN) provide life-saving services for women and children fleeing violent situations.

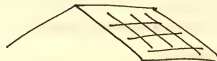
Congratulations on your great work!

Linda Rasmussen
Linda Rasmussen
Executive Director
Domestic Abuse Women's Network

♥ Thank you for the support that you have given to our Greenwood Food Bank. You have enabled us to increase the number of people that we are able to serve as well as provide more nutritious food. Some things only happen because someone cares. I am grateful that you care enough to try to make a difference in our community.

Connie Devaney
Connie Devaney
President/CEO
Volunteers of America

♥ Thanks to you, we have a new roof over our head!



Jane LaFollette
Jane LaFollette
Center Director
Shaght Community Mental Health Center

♥ Thank you so much for your continued support to the mission and purposes of Operational Emergency Center. Your food, clothing, and volunteer help go a lot further because they come from so many of you throughout the year.

Dee Anderson
Dee Anderson
Executive Director
Operational Emergency Center

♥ The new equipment we recently purchased with your support makes life easier for our clients and volunteer staff. You are truly appreciated.

Dan Casey
Dan Casey
Tri-County Project Director
National Senior Volunteer Program
Mason, Lewis, and Thurston Counties

FETS offers high hopes for tests without flight

by Randy Harrison
Boeing Commercial Airplane Group

A team of Seattle-based engineers is using computerized equipment to "trick" airplanes into thinking they are flying—a technical deception that could significantly change the way jet-airplane electronic control systems are tested.

The team has high hopes for the computerized creation called FETS, short for Flight Emulation Test System.

If it matures as they envision, FETS will cut the time to test airplanes on the ground by allowing mobile, on-the-spot analysis of entire instrument and avionics systems in just hours. Those complex components now are tested individually over a period of days during airplane assembly.

"What amuses us about FETS is the knowledge that its success is based on its ability to deceive," said Boeing engineer John Bucher, principal developer of the system.

"Basically, FETS works by fooling an airplane into thinking it's flying," he said.

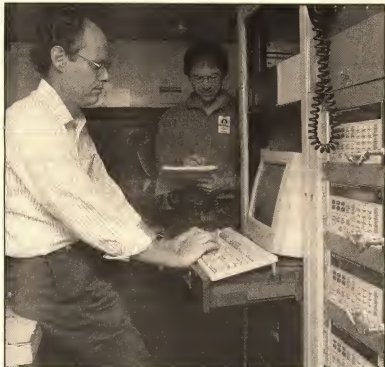
For more than a decade, pilots



The new Boeing Flight Emulation Test System saves time and money by allowing mobile testing of entire airplane instrument and avionics systems in just hours while the plane is on the ground. Here, a technician hooks up a

Boeing 767 to inertial-reference-unit simulator cables attached to a computer in the FETS van. The system works by making the airplane being tested "think" that it is flying.

—photo by Ken DeJarnais



A computer in a van provides the brains for the Boeing Flight Emulation Test System, which allows "flight" testing on the ground. Boeing engineer John Bucher, principal developer of FETS, sets up test parameters on the computer as Hugh Unangst, the other member of the FETS team, looks on. The computer is connected by cables to the airplane being tested.

—photo by Greg Thor

have trained and tested on realistic computers that simulate flight.

A few years ago, Bucher began writing the software for and designing a system to test airplane systems through flight simulation.

Working alone until 1988, Bucher pursued his theory that FETS would permit testing of entire electronic control systems important to flight without the need to start an engine or staff a cockpit.

Hugh Unangst, now the other member of the FETS team, has a job Bucher called crucial to FETS' success — making it "user friendly."

"We want a lot of people — flight-line mechanics or pilots, for instance, not just engineers — to use FETS," Bucher said.

"Essentially," Bucher said, "what Hugh is doing is camouflaging the complexity of the system from users who don't really need to know how it works as long as it does the job they want."

In the past four years, the FETS team has managed to "fly" all the types of jets Boeing produces, from "takeoff" to "touchdown" three hours later, without the airplanes ever moving off the apron or even

starting their engines.

One of the accomplishments that has most justified development of the system involved "freezing" a Boeing 747-400 as if it were a mere 50 feet off the runway during landing.

This helped in a case where, during 747-400 flight tests, engineers were wrestling with recalcitrant rudder actuators that refused to align themselves as designed.

"Before FETS was available, the only course of action was to make an adjustment, take the plane up and test it, then land and make another adjustment. Flight test it again and so on until they got it right," Bucher noted.

Flight test engineer Byron Billingsly, who headed the team working on the 747's problem, heard of the system through the company grapevine.

"We looked at it and thought it would be great for our work on the 747-400," Billingsly recalled.

When connected and started up, the FETS computer continually calculated altitude, speed, pitch and roll and other variables based on the flight control inputs from the 747-400.

To check the uncooperative control surface, FETS fed signals into the airplane's instruments to make it believe it was on final approach 50 feet above the runway.

When the "pause" command on the FETS computer screen was touched, FETS "froze" the instruments at precisely the positions they would occupy at that moment in the final approach.

Engineers and technicians then

physically checked the control surface in question, made the necessary adjustments and the flight control system worked fine from then on.

FETS users can stop and rewind the program to the same point and repeat a flight phase as often as they like, something obviously impossible in actual flight.

In addition to testing airplanes at the immediate end of manufacturing, FETS has tested systems for airplanes still in design and others long in service.

For the past several months, the FETS team has been testing flight control computers for Boeing's newest jetliner, the twinjet 777.

FETS also has successfully analyzed individual instruments that misbehave.

"There was a radio navigation display in one airplane that operated correctly in the lab but wouldn't work in the airplane," Bucher recalled.

"So the test pilot rejected it."

"Then we brought the component to the FETS lab — our mock cockpit. We plugged it in, 'flew' it, and sure enough, it did just what the pilot said it was doing in flight. So we were able to send it back to the manufacturer with a rejection tag citing specifics."

When they look ahead, Bucher and Unangst see a compact version of FETS so small it will fit into a standard luggage container for shipment anywhere.

They believe such a small, portable system would be of great value to repair crews rebuilding damaged aircraft. ■

Closed for snow . . . NOT!

Snow in the mountains, according to weather reports, is getting lower and lower down the hills.

But even if the snow gets to sea level, Boeing plants are unlikely to close.

According to Corporate Policy 10C1:

"Operations will generally not be suspended because of road or weather conditions. However, where conditions are such that lo-

cal officials are publicly requesting that citizens do not enter the streets, employees may, at their discretion, adhere to such request."

If wondering about closures before going to work, employees should listen to local radio and television regarding any suspension of Boeing operations.

Metro advises people who depend on buses to plan ahead for snow-condition routes and pickup points.

Planning ahead can be helpful because, during snow, Metro may reroute some buses to avoid hazardous hills. Bus schedules show the rerouting with printed snowflakes on the schedule cover.

Where buses do operate on snowy hills, Metro asks riders to wait at stops at the top or bottom of the hills. Buses, once started, may not be able to start and get started again on the hills themselves.

Bus-information phone numbers are:

■ Metro, 553-3000 in King County or, toll free, 1-800-542-7876 outside King County.

■ Community Transit, 353-7433 in Snohomish County or, toll free, 1-800-562-1375 outside Snohomish County.

■ Pierce Transit, 581-8000 in the Tacoma area or, toll free, 1-800-562-8109 outside the Tacoma area. ■

Boeing Lifeline accepting donations

Blood donations will be accepted by Boeing Lifeline next week at:
Auburn, 8 a.m. to 3 p.m. Wednesday, Dec. 9, and 3 to 7 p.m. Thursday, Dec. 10, 17-11 bldg. cafeteria;

Developmental Center, 9 to 11:15 a.m. and noon to 3 p.m. Thursday, Dec. 10, 9-8 bldg. executive parking lot;

Oxbow Corporate Park, 9 a.m. to 3 p.m. Tuesday, Dec. 8, cafeteria banquet room;

Renton, 10 a.m. to noon and 12:45 to 4 p.m. Thursday, Dec. 10, in front of 10-20 bldg.

Nominations open at BECU

Boeing Employees' Credit Union has announced that nominations for three board of director positions and one supervisory committee position are now being accepted.

Those interested should call Sharon Romey at 439-5981 by Dec. 23 to allow time for interviews before the selection of nominees.

As an alternative to interviewing with the nominating committee, would-be nominees also may seek

a director or supervisory committee nomination by petitioning those who were BECU members as of Oct. 31 and obtaining at least 3,601 signatures.

Information on petitioning and forms for petitions are available at BECU. Petition signatures must be submitted to the credit union by Dec. 23 deadline.

Nominees will be voted on by BECU members at the annual meeting Feb. 24. ■

Withholding changes Jan. 1

Payroll federal income tax tables change Jan. 1.

Effective Jan. 1, 1993, federal income tax tables will be changed to reflect the 1993 tax withholding rates and personal exemption amounts that have been adjusted for inflation.

The following tables can be used to determine the amount of federal income tax to be withheld from wages received on or after Jan. 1, 1993. Steps for calculating the new withholding amounts are:

1. Multiply the number of allowances claimed on Form W-4 by \$90.35 for biweekly payroll or \$45.19 for weekly payroll.
2. Subtract the above number from the "TOTAL CURRENT EARNINGS" (wages subject to federal income tax) on your paycheck.
3. The remainder is designated as the "amount of wages" in the tables below.

SINGLE person — including head of household — biweekly payroll			
If the amount of wages (after subtracting withholding allowances) is:		The amount of income tax to be withheld shall be:	
Not over \$97		0	
Over	But not over	Of excess over	
\$ 97	\$902	15%	\$ 97
\$ 902	\$1,884	\$120.75 plus 28%	\$ 902
\$ 1,884		\$395.71 plus 31%	\$ 1,884

MARRIED person — biweekly payroll			
If the amount of wages (after subtracting withholding allowances) is:		The amount of income tax to be withheld shall be:	
Not over \$238		0	
Over	But not over	Of excess over	
\$ 238	\$1,567	15%	\$ 238
\$ 1,567	\$3,125	\$189.35 plus 28%	\$ 1,567
\$ 3,125		\$635.59 plus 31%	\$ 3,125

SINGLE person — including head of household — weekly payroll			
If the amount of wages (after subtracting withholding allowances) is:		The amount of income tax to be withheld shall be:	
Not over \$49		0	
Over	But not over	Of excess over	
\$ 49	\$451	15%	\$ 49
\$ 451	\$942	\$60.30 plus 28%	\$ 451
\$ 942		\$197.78 plus 31%	\$ 942

MARRIED person — weekly payroll			
If the amount of wages (after subtracting withholding allowances) is:		The amount of income tax to be withheld shall be:	
Not over \$119		0	
Over	But not over	Of excess over	
\$ 119	\$784	15%	\$ 119
\$ 784	\$1,563	\$99.75 plus 28%	\$ 784
\$ 1,563		\$317.87 plus 31%	\$ 1,563

Social Security and Medicare wage bases up in 1993

As announced earlier (Boeing News, Nov. 6), the 1993 Social Security (Old Age Survivors and Disability Insurance, or OASDI) wage base will be \$57,600, up from the current \$55,500.

The Medicare (Hospital Insurance, or HI) wage base will be \$135,000, up from the current \$130,200.

The 7.65-percent FICA (Federal Insurance Contributions Act) rate, which is the combined Social Security rate of 6.2 percent and the Medicare rate of 1.45 percent, will remain the same.

With these increases, the maximum Social Security tax payable by employees for 1993 will be \$3,571.20, an increase of \$130.20 from the current maximum of \$3,441.00. The maximum Medicare tax for 1993 will be \$1,957.50, an increase of \$69.60 from the current \$1,887.90.

Thus the total maximum FICA withholding for 1993 will be \$3,571.20 plus \$1,957.50, or \$5,528.70. That is \$199.80 more than the 1992 maximum.

For an employee earning in 1993 a lesser amount than the maximum for FICA withholding — say, \$35,000 — the withholding would be calculated:

\$0.00 to \$57,600 @ 7.65%	
\$35,000 X 0.0765 =	\$2,677.50
\$57,600.01 to \$135,000.00 @ 1.45%	
\$0.00 X 0.0145 =	0.00

FICA withholding for wages of \$35,000

\$2,677.50

For an employee earning in 1993 the maximum pay for FICA withholding — \$135,000 — that maximum withholding would be calculated:

\$0.00 to \$57,600 @ 7.65%	
\$57,600 X 0.0765 =	\$4,406.40
\$57,600.01 to \$135,000.00 @ 1.45%	
\$135,000 - \$57,600 X 0.0145 =	1,122.30
Total maximum FICA withholding	\$5,528.70

FICA is calculated from gross earnings before deduction of Voluntary Investment Plan contributions and after deduction of Dependent Care Expense Account Plan contributions.

HOTLINE • HOTLINE

CORPORATE OFFICE OF BUSINESS PRACTICES
655-1500 OR 1-800-843-5003

MAIL STOP 14-14

The Andrew aftermath

Relief shipments hope to help holiday spirits

by Rick Roff
Boeing News, Seattle

Life has improved since Hurricane Andrew, which devastated the Gulf Coast region more than two months ago, but many of the storm's victims continue to suffer. With the holiday season approaching, the impact of Andrew will become even more acute for some.

"The holidays will be very depressing for quite a few of these people," said Howard Hopwood, who works in Boeing Aerospace Operations at Cocoa Beach, Fla., and has been on the receiving end of several relief efforts from Boeing employees in Seattle.

"Most of the people are still in the aftermath and the shock of what it will take to get their lives back together. It's happening, but it's going to take a long time."

The need changes as improvements are made, Hopwood said. At first the need encompassed basic necessities such as food, clothing and medicine. As stores reopened the need has switched to appliances, school supplies and donations of cash for construction repairs and cleaning of leftover debris.

"We never had any mountains here, but we've got them now," Hopwood said of Miami's Homestead area, where many buildings and homes were left without roofs. "All the debris from the destruction gets bulldozed into huge mounds. Blown-down telephone poles have been piled in parking lots where they are being recycled."

There are many cases where people's homes have been destroyed, and insurance companies, inundated by claims, have filed for bankruptcy. People are waiting, Hopwood said, for state or federal assistance that is slow in coming.

The same response cannot be said of people across the nation who answered the region's call for help, including Boeing employees. One group of employees in particular, at Renton Benaroya, has collected and shipped more than 1,100 pounds of relief to Cocoa Beach in the past two months.

Karen Eidinger, who works for



Boeing employees in Seattle have sent more than 1,000 pounds of supplies to employees at Cocoa Beach, who in turn have transported the relief packages to victims of Hurricane Andrew. One such shipment, seen here in an employee's truck, is ready for delivery to the Homestead area near Miami.

Boeing Defense & Space Group in Renton, said she was approached by employees in her building who wondered how such an effort could get started. Eidinger, who also helps coordinate Community Outreach donations in the Seattle area, said employees put up fliers and set up boxes for donations.

Boxes filled with supplies were repackaged for shipping by Tom Schomburg, a shipping clerk for Boeing Commercial Airplane Group, Fabrication Division, and Boeing paid for overnight delivery.

The shipments arrived too big to handle at Cocoa Beach, and it took

a local grocery store to help load the crates in employee pickup trucks. Hopwood and fellow employees transported the donations from Cocoa Beach to a church in Homestead, where they have been stored and distributed to people devastated by the Hurricane.

"It will be a long time before these people can say their lives are back to normal," Hopwood said. "The area just looks horrible from the devastation that has taken place and all the debris that remains."

"What employees in Seattle have done to help is just incredible. But I have to say, the need goes on." ■

Care to help? Here's how

Employees may continue to assist victims of hurricanes Andrew or Iniki through the American Red Cross or Salvation Army by writing checks or using credit cards.

Checks can be written payable to the American Red Cross, Hurricane Relief, and sent to the national office of American Red Cross, P.O. Box 37245, Washington, D.C. 20013.

Checks also can be written payable to the Salvation Army Hurricane Relief Fund and sent to Hurricane Relief, Salvation Army, P.O. Box 9219, Seattle, Wash. 98109.

Employees companywide can use the Seattle address or contact their local Salvation Army office. Although it is not required, employees must specify on the check which hurricane relief effort they wish to support.

Credit cards can be used by calling a national American Red Cross number, 1-800-842-2200. An operator will assist the caller.

Credit cards also can be used by calling a Salvation Army number, 1-800-736-7291, from 8:30 a.m. to 4 p.m. PST.

757, 767 production rates to decline

Boeing Commercial Airplane Group, responding to a weak airplane market, will reduce production rates next year on 757 and 767 jetliners.

"Our customers' delivery needs are changing as a result of the difficult time many of them are currently having," said Dean Thornton, president of Boeing Commercial Airplane Group. "We are adjusting our rates to meet their needs."

Production of 757s, Thornton said last week in a bulletin to employees, will decrease from the current 8.5 a month to seven a month in June 1993 and to five a month in November 1993. The reduction to seven a month had been planned for September 1993 (Boeing News, Sept. 4, 1992).

Production of 767s, now at five a month, will go to four a month in November 1993.

The impact of production cuts on jobs is "hard to tell right now," Thornton said.

"Early indications are that these reductions could result in the loss of about 2,000 jobs in the Puget Sound area and about 500 in Wichita.

"Those figures may be affected, however, by our increasing need next year for people on the 777 program.

"We will have a more accurate picture early next year."

Thornton said the painful impact of reduced production rates "convinces me all over again that we must take every step possible to make our company more competitive and more flexible in anticipating and responding to our customers' needs."

"We have been working hard for some time to build continuous quality improvement into the way we do things," he said.

"We have done it because we know that to get our share of the long-term market — worth an estimated \$800 billion over the next 10

to 15 years — we have to be better than we are today.

"We will have to shorten the time it takes to build our airplanes. We will have to shrink our inventories. We will have to make sure more of our work adds value for our customers."

Positive aspects of the situation Boeing is now in are worth remembering, Thornton said.

"First, we have an order book with a backlog worth more than \$85 billion, which is an enviable position to be in.

"Second, we are in better shape to weather this recession because we expanded prudently during the order blitz of the late 1980s.

"Third, the work we have done and are doing to improve quality and processes gives us a head start on the changes we need to make."

As of Nov. 30, unfilled announced orders with Boeing Commercial Airplane Group stood at 1,426 aircraft. ■

Shrontz 'Man of Year' says Financial World

Boeing Chairman and Chief Executive Officer Frank Shrontz has been named "Man of the Year" by Financial World magazine.

The honor reflects the prominence of Boeing as America's single largest exporter and the decisions Shrontz has taken to retain the competitive advantage of Boeing in a "world market for commercial aircraft (that) promises to be far more competitive than it is today."

In particular, the magazine, in its Dec. 8 issue, praises the far-sightedness of Shrontz in forcing Boeing to begin reshaping itself for the future instead of resting complacently on a fat airplane-order backlog.

"Shrontz's biggest decision in the late Eighties was to reform the company's 75-year-old culture," the magazine said.

Through reform of the "rigid corporate hierarchy" and other measures to improve the company's efficiency, Shrontz is "determined to take 20 percent to 30 percent out of Boeing's cost structure over the next five years, even though Boeing is already the world's lowest-cost aircraft producer," Financial World noted.

"Such dramatic cost reductions would be a potent weapon against Airbus, which is locked into contracts that keep its manufacturing in high-cost countries such as Germany and France," the magazine said.

If use of design/build teams and computer-aided design prove themselves on the 777 program, Boeing

could "save several billion dollars in costly rework, delays and materials," according to the article.

"It will also speed the jet to market in two thirds the time it would take Airbus to develop an aircraft."

The magazine also praised Shrontz for:

■ Avoiding a too-rapid buildup of airplane production after the order boom of the late 1980s, thereby preserving quality and building up a record order backlog.

■ Avoiding selling or radically downsizing the loss-making defense and space business, which — after restructuring and stricter program controls — "will turn in a handsome profit this year," according to the magazine.

The biggest challenge facing Shrontz "will be the transformation of Boeing into a truly global manufacturer," the magazine said.

The transformation will entail more manufacturing in countries outside the United States in order to gain market access to those countries.

It also will include a greater share of investment from foreign countries, because "Boeing simply won't be able to afford to undertake major new jet programs by itself without incurring enormous financial risks."

"The trick for Shrontz will be maintaining a delicate balance between the risk of creating future competitors and guaranteeing future sales," Financial World observed.

Airlock is focus

OUTPOST

From Page 1

a number of analytical tools available to Boeing design engineers.

The outpost is designed as a base of operations to support an exploration crew of four for up to 42 days. They would be transported to and from the moon's surface in a separate crew vehicle (shown in the lower left background of the accompanying drawing). In this concept, the crew vehicle consists of a lander stage — compatible with the outpost lander stage — and an Earth return module. A common lander stage and a habitation system is included in the outpost vehicle.

Once it robotically lands on the moon, the outpost would deploy its photovoltaic array, communication antenna and thermal shields.

After powering up its housekeeping systems, the outpost would confirm communication with mission control and complete system tests before a decision is made to commit a crew vehicle launch.

The habitation system in the concept consists of a pressurized habitat module, an airlock and external utility systems such as electrical power generation, thermal radiators and communications.

"Boeing is positioning itself to be a leading supplier of lunar surface systems hardware for human exploration missions," said Carl Case, Boeing Exploration Systems manager.

"We are developing a range of concepts and systems that will enable NASA to put together affordable, low-risk lunar exploration missions by the end of this decade, and to grow this mission hardware

for both Mars missions and a permanent lunar base."

The pressurized module is a Space Station Freedom habitat module slightly modified for lunar application. Modifications include man-system accommodations, interior configuration, contiguous living and working areas, and subsystem changes to optimize performance in the lunar environment.

The lightweight airlock concept envisioned for the capsule (the cylindrical structure at the top of the ladder in the drawing) is an example of innovative Boeing engineering. Exploration requires frequent, convenient extravehicular activity (EVA) access.

Citing development and transportation costs, Boeing designers have focused on a lightweight, low-power, minimal-air-loss airlock system.

To prevent lunar dust from getting into pressurized living areas, efficient dust control systems are required to operate in the 1/6th gravity field on the moon.

That requirement led to the novel airlock design, which design engineers call the "doorlock." It is an airlock structure built into the space station module end cone with internal and external doors. When a crewman exits the pressurized area, the doorlock is vented to space. On entry, it is pressurized by bleeding air from the adjacent module.

The doorlock has an integrated dust removal system, and can be used in an unmanned fashion to pass supplies in and out of the module.

But best of all for Boeing designers and NASA's astronauts, it is small, lightweight and of low cost. ■

Fairing bar provided a solution

RIPPLE

From Page 1

for the waviness criteria. But the shims added weight and labor, and out of the 100-plus cabs done that way, only one met the 60-thousandths requirement.

"We realized there was a much bigger problem," Wiederkehr said. The team decided to build the airplane from the outside in, instead of from the frame outward, as they had been doing.

"The team came up with the idea of having a fairing bar to locate all the frames to," he said. "The bar was machined to the outside surface requirement, pulling the frames out to meet an outside surface that

we knew was good and correct."

A fairing-bar production tool has been perfected, and of the seven 767s that have been produced with the new method, all have met the 60-thousandths waviness criteria, and some have required no shimming at all in the Pitot-static area.

There are many other benefits,

OBJECTIVE:

Continuous improvement in quality of products and processes.

The 767 Section 41 Cab Assembly CQI team in Wichita continues to make further improvements, including reducing shimming in other areas of the cab assembly. ■

proved product quality because, cosmetically, the cab looks better, smoother. And the cab now also joins better with the lower lobe."

McMullen, who recently was given Everett's Pride in Excellence Award for outstanding performance, credited cooperation and communication between the supplier and the customer for the success of the project.

"Teamwork really enhanced this process tremendously, and I think it helped the people in Everett realize that we really want to help them down here," McMullen said.

The 767 Section 41 Cab Assembly CQI team in Wichita continues to make further improvements, including reducing shimming in other areas of the cab assembly. ■

Step ahead costly

IASL

From Page 1

Davis said, commanding organizations throughout Boeing that support the IASL, as well as the IASL general contractor.

He said the first big step in integrated-system testing was the Digital Avionics Flight Control Laboratory developed for the 777.

"That was our first real step into integrating digital avionics with the rest of the airplane."

"We have another big step ahead of us."

The size of that step is indicated by the cost of the IASL, Davis suggested.

The building and site development will cost about \$135 million, and test equipment will add another \$160 million to, eventually, \$200 million.

Nevertheless, Davis said to the crowd at the ceremony, "I think the most important resource of all is you."

"You have an opportunity to really do one of the best jobs in the country."

"To my knowledge, none of our competitors in the commercial airplane business has a facility like this, has the capability to do what we're going to do."

"If we're going to meet all the goals that we've committed to our customers, we have a tremendous job ahead of us," Davis said.

Mutually told the audience that

"many airlines are disappointed with the reliability and service-readiness of new airplanes."

"This new facility," he said, "will allow us to test the airplane systems more comprehensively to ensure they are service-ready."

"Your contributions to the opening of this new test facility will show the Boeing commitment to full customer satisfaction." ■

QUICK FACTS

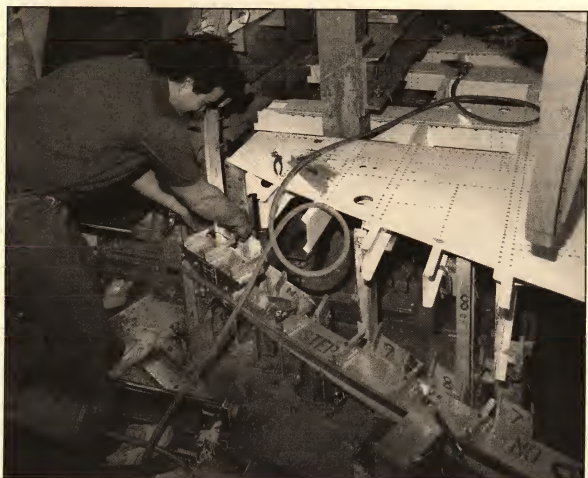
The Integrated Aircraft Systems Laboratory comprises 328,000 square feet of laboratory space, 130,000 square feet of office space and 600,000 square feet of high-bay laboratory, where the "iron bird" for testing flight controls is located.

In the IASL are 26 major functional laboratories located in 158 rooms for avionics, flight systems, electrical systems, hydraulic systems and mechanical systems.

Construction began in May 1991, and the lab was ready for full occupancy on Oct. 2, 1992.

The prime initial task of the lab is to help Boeing deliver a service-ready 777 in May 1995.

About 1,000 employees will work permanently at the IASL, plus employees temporarily assigned from other locations. In all, some 1,150 employees will work at the lab by the end of 1993 in support of the 777 and other programs.



Tommy Mount, 3-2920, pulls a 767 cab frame out to a fairing bar, bottom. Using the fairing bar allows the frames to be located more precisely and reduces the amount of shimming needed. Cabs assembled in Wichita with the

new fairing-bar method have met 60-thousandths of an inch tolerance criteria. The effort was an example of Everett and Wichita teamwork to produce manufacturing improvements.

—photo by Hugh Tessenoff